

Name \_\_\_\_\_

Math 1

## Quiz 15

For all problems, show all work. You may use a graphing calculator. Do not round. Good luck! ☺

1. (7A, 7E) If  $\vec{u} = \langle 5, -3 \rangle$  and  $\vec{v} = \langle -4, 7 \rangle$ , determine  $\|\vec{u}\|$ ,  $\|\vec{v}\|$ , and  $\|\vec{u} + \vec{v}\|$ .
2. (7B) Determine the equation of the circle that has a diameter with endpoints at  $(-6, -3)$  and  $(1, -1)$
3. (7G) Use a determinant to figure out the value of  $a$  such that the following system does *not* have a solution:

$$\begin{cases} ax + 7y &= 13 \\ 4x - 3y &= 10 \end{cases}$$

There are more problems on the back! ☺

4. (7G) Determine the inverse of the following matrix:

$$\begin{pmatrix} 3 & 1 \\ 6 & 7 \end{pmatrix}$$

5. (7F) Use your answer to the previous problem to solve the following system:

$$\begin{cases} 3x + y &= 32 \\ 6x + 7y &= 15 \end{cases}$$

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1. (7A, 7E) If  $\vec{u} = \langle 3, -5 \rangle$  and  $\vec{v} = \langle 8, -3 \rangle$ , determine  $\|\vec{u}\|$ ,  $\|\vec{v}\|$ , and  $\|\vec{u} + \vec{v}\|$ .
2. (7B) Determine the equation of the circle that has a diameter with endpoints at  $(-1, -4)$  and  $(-7, 1)$
3. (7G) Use a determinant to figure out the value of  $b$  such that the following system does *not* have a solution:

$$\begin{cases} 7x + by &= 13 \\ 4x - 3y &= 10 \end{cases}$$

There are more problems on the back! ☺

4. (7G) Determine the inverse of the following matrix:

$$\begin{pmatrix} 4 & -9 \\ 3 & 2 \end{pmatrix}$$

5. (7F) Use your answer to the previous problem to solve the following system:

$$\begin{cases} 4x - 9y = 32 \\ 3x + 2y = 15 \end{cases}$$